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Family attachment, family conflict, and delinquency in a sample of rural youth

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FAMILY ATTACHMENT, FAMILY CONFLICT, AND DELINQUENCY IN A SAMPLE
OF RURAL YOUTH

BY

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BA of Psychology/Forensic Psychology, Southern New Hampshire University, 2011

THESIS

Submitted to the University of New Hampshire

in Partial Fulfillment of

the Requirements for the Degree of

Master of Arts

In

Justice Studies

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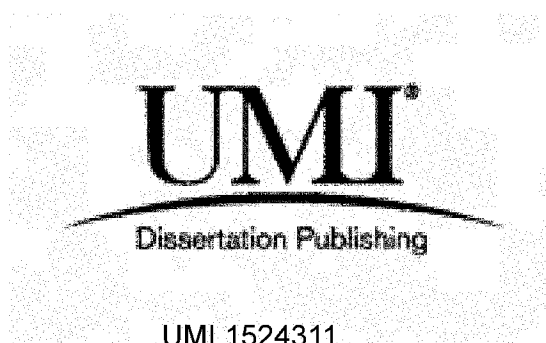
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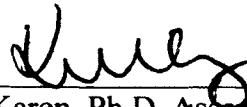
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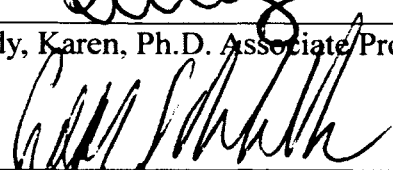
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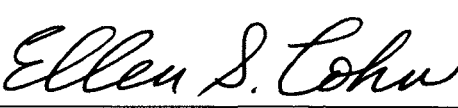
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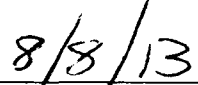
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Date

DEDICATION

This thesis is dedicated to my family for all of the support they have shown me through this process. I would especially like to thank my husband, Dan, for all of the extra hard work he undertook to take care of our children. I would also like to thank my children, Gabby and Dan Jr., for being understanding when Mommy had to spend so much time on her computer. I would like to thank my father for his support and input. I would like to thank my mother and mother-in-law for the extra time and effort they spent taking care of the children to make it possible for me to attend classes.

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ABSTRACT

FAMILY ATTACHMENT, FAMILY CONFLICT, AND DELINQUENCY IN A SAMPLE
OF RURAL YOUTH

by

Susannah Perron

University of New Hampshire, September, 2013

This thesis applies tenets of strain theory and social control theory to explore the influences that family attachment and family conflict may have on juvenile delinquency and substance use. This thesis examines the effect of one type of strain, family conflict, and family attachment, one of the key bonds described in control theory, on juvenile's propensity to commit delinquent acts or use substances. In addition, this thesis explores possible gender differences in the way that these family variables impact risk for delinquency and substance use. This thesis includes a rural sample of two groups of adolescents (8th and 12th grade), employing logistic regression equations to evaluate the effects of family conflict and attachment on delinquency and substance use, along with moderating effects of gender and age. It was found that family conflict, but not family attachment, was significantly related to delinquent behavior and substance use. The theoretical implications of these results and areas for future research are discussed.

INTRODUCTION

Delinquency is different from criminal behavior simply because of the age of the offender (Cloward & Ohlin, 1960). In both cases, the individual is engaged in deviant behavior that has been deemed worthy of criminal penalties. All deviant acts are violations of social norms, but only certain acts have been labeled criminal and have accompanying penalties. In addition to the commission of acts that are considered criminal for all members of society, delinquent acts also include certain status offenses that are only illegal because the violator is under a certain age, such as the consumption of alcohol, tobacco use, truancy, or running away from home (Cloward & Ohlin, 1960). Most delinquent behavior is minor and nonviolent, but other delinquent behavior can be considered so severe that an individual under the age of eighteen can be charged as an adult (Cloward & Ohlin, 1960).

This thesis focuses on three forms of delinquent behavior—aggressive behavior, property offenses, and substance use. Aggressive or violent behavior was combined with property offending to create a measure of delinquency. It is the prevailing belief in the criminological literature that all rule-violating or deviant behavior is attributable to the same root causes (Gottfredson & Hirshi, 1990). Recent research has challenged the prevailing view of generalization and investigated the possibility of offender specialization where certain individuals choose to only engage in a particular type of criminal behavior (Nieuwbeerta, Blokland, Piquero, & Sweeten, 2011). Researchers have found that there are multiple factors, rather than one single pathway, that can lead to delinquent behavior (McGloin, Sullivan, Piquero, & Pratt, 2007; Rebellon, & Waldman, 2003). Due to the fact that substance use and other forms of delinquency, while

interrelated and often correlated, do not always stem from the same processes or relate in the same ways to different variables, substance use was investigated as a separate variable. Not only is it possible that substance use may not be caused by the same processes as other types of delinquent behavior, it is also possible that family factors may impact substance use and delinquency rates differently (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011).

This thesis is drawing from a rural sample of adolescents which is different from most studies on juvenile delinquency that draw on urban samples. The fact that this is a rural sample is important, because rural samples have been shown to have lower rates of delinquency (Richard & Skipper, 1981; Taylor, Merritt, & Austin, 2013) and substance use rates than urban samples (Coomber, Toumbourou, Miller, Staiger, Hemphill, & Catalano, 2011). Given that most prior work has focused on urban samples, less is known about rural youth. A study by Lyerly and Skipper (1981) using the commitment measure of social control, one of the four bonds in social control theory developed by Hirschi (1969), found a strong inverse relationship between commitment to socially accepted goals and delinquency for youths in a juvenile detention facility. However, rural youths engaged in significantly less delinquent behavior than urban youths, even though both groups were already in juvenile facilities (Lyerly & Skipper, 1981). In a similar study of adjudicated males, rural individuals had fewer risk factors for delinquent behavior than urban individuals. In a study that compared an urban, but mostly African American sample to a rural and more ethnically diverse rural sample, researchers found that rural youths had lower rates of aggressive behavior, drug use, and general delinquent behaviors

(Farrell, Sullivan, Esposito, Meyer, & Valois, 2005). In addition, the positive effects of family and school were stronger for rural males (Nelson, Coleman, & Corcoran, 2010).

Similar to delinquency, rural populations have lower rates of substance use; however this difference is small and may vary by type of substance studied (Cronk & Sarvela, 1997). Another study of adjudicated males found that urban youths were more likely to engage in substance use (Elgar, Knight, Worrall, & Sherman, 2003). It has also been found that rates of substance use by rural adolescents have been increasing in recent years, possibly due to the economic decline experienced by many of these regions over the past few decades (Taylor, Merrittm, & Austin, 2013). In addition it seems that substance use by younger adolescents is increasing in rural, but not urban communities. Use of tobacco, marijuana, and alcohol has recently been found to be higher among rural juveniles than their urban counterparts (Coomber, Toumbourou, Miller, Staiger, Hemphill, & Catalano, 2011). As rural samples may have different rates of delinquency and substance use, this thesis will add to existing literature by evaluating the unique effects of a rural community on these variables.

THEORETICAL EXPLANATIONS OF DELINQUENCY AND FAMILY

Juvenile delinquency has been studied in many disciplines for many years, leading to many different theories as to what causes individuals to commit delinquent acts (Hoeve, Stams, van der Put, Dubas, van der Laan, & Gerris, 2012). Two of the leading theories in criminology that have been developed to investigate the link between family variables and delinquency are strain theory (Fergusson, Swain-Campbell, & Horwood, 2004; Froggio, 2007; Moon, Blurton, & McCluskey, 2008) and social control theory (Church, Wharton, & Taylor, 2009; Fergusson, Swain-Campbell, & Horwood, 2004; Sokol-Katz, Dunham, & Zimmerman, 1997). The literature review of this thesis explores how the tenets of strain and social control theories have been applied to understanding delinquency and substance use.

Strain Theory

Strain theory is a classic theory describing how individuals who do not have the means and opportunities to achieve socially approved goals commit delinquency in order to overcome blocked conventional paths and achieve success (Merton, 1938; Murphy & Robinson, 2008). Agnew's general strain theory focuses on strain that stems from negative relationships with others (Agnew, 1992). General strain theory not only examines how others can block socially approved goals, but also more intermediate goals such as popularity or good grades. In addition to blocked goals and aspirations, Agnew also examined strain caused by threatened or actual removal of positive stimuli, such as losing a boyfriend, and threatened or actual addition of negative stimuli, like insults, both of which negatively affect interpersonal relationships (Cullen & Agnew, 2003).

Negative relationships, whether in the family or with peers, can lead to delinquent behavior when they create pressure leading to criminal coping (Agnew, 1992). Strain from a negative relationship with one's parents can arise for multiple reasons including abuse, neglect, or erratic discipline (Cullen & Agnew, 2003). In this thesis, measures of familial conflict are used to approximate strain from negative relationships. Conflict between the juvenile and his or her family in general are investigated, including conflict with his or her mother, father, and siblings. The more negative the relationship, the more unjust the negative strain, and the greater the amount of strain that is experienced by an individual, the more likely it is that the strain will lead to delinquency (Agnew, 1992; Cullen & Agnew, 2003). Family conflict can lead to negative relationships that increase the risk of delinquent behavior; however, other theories, such as social control theories, focus on positive relationships that can restrain individuals from engaging in delinquency (Agnew, 1992; Hirschi, 1969).

Social Control Theory

Social control theory examines positive relationships with parents and social institutions and how these relationships reduce risk for delinquent behavior. This theory was proposed by Travis Hirschi (1969), who claimed that all people are compelled to commit crime and the only thing stopping them are social bonds—especially to family, peers and school. Hirschi proposed that there were four forms of social bonds: attachment, involvement, belief, and commitment. Attachment involves direct emotional connections to people or institutions. Involvement includes the time and effort dedicated to family, peers, and social institutions. Belief includes the degree of support an

individual gives to social norms. Commitment describes how much a person values these socially approved success goals (Zembroski, 2011).

Social bonds are created by attachment, commitment, involvement, and belief in conventional institutions. Even if social bonds were created, they can erode in certain situations such as family break-up, poor parenting, or school failure (Ford & Schroeder, 2011; Groot & van den Brink, 2010). Social control theory assumes that when social bonds erode, people are more likely to engage in delinquent behavior because social bonds create a form of informal social control. Likewise, strong social bonds decrease the likelihood that individuals will engage in delinquency (Fergusson, Swain-Campbell, & Horwood, 2004). This thesis focuses on the attachment component of social control theory. Specifically, investigating how juveniles' attachment to their families impacts risk of juvenile delinquency and substance use.

FAMILIAL FACTORS AND THEIR EFFECT ON DELINQUENCY AND SUBSTANCE USE

The role of family variables and their relation to delinquency is common to many criminological theories, including control theory and general strain theory (Zembroski, 2011). Although family variables have been studied greatly, family and delinquency have both been operationalized as well as measured in different ways depending on the study. Families that are very strong, supportive, and have two consistent parents in the home can decrease the risk that an individual will engage in delinquent activity, while families that are weak, unsupportive, neglectful, abusive, or unstable can increase an individual's risk of delinquency (Church, Wharton & Taylor, 2009). Family plays a strong role in shaping juvenile delinquency; however the impact of family is difficult to study, because there are so many factors that can be considered (Church, Wharton & Taylor, 2009).

One family variable that has been frequently studied among criminologists is family attachment. Family attachment has been evaluated by investigating a juvenile's attachment to his or her mother, father, both parents, and siblings (Anderson, Holmes, & Ostresh, 1999; Hoeve et al., 2012; Kostecky, 2005; Scott, Briskman, Woolgar, Humayun, & O'Connor, 2011; Sokol-Katz, Dunham, & Zimmerman, 1997). The impact of family conflict on delinquency has been evaluated in a similar manner, looking at aggression or conflict between a juvenile and his or her mother, father, or siblings (Bradford, Vaughn, & Barber, 2008; Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011; Klein, Forehand, Armistead, & Long, 1997; Low, Shortt, & Snyder, 2012; Sigfusdottir, Farkas, & Silver, 2004; Skeer, McCormick, Normand, Mimiaga, Buka, &

Gilman, 2011). In this thesis, both family attachment and family conflict and their relation to substance use and delinquency are reviewed.

Family Attachment and Delinquency

Early family strain in a child's life increases his or her propensity to commit delinquent acts (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011; Skeer, McCormick, Normand, Buka, & Gilman, 2009). In contrast, strong family attachment is a factor that acts to reduce one's propensity to engage in juvenile delinquency (Hoeve et al., 2012). Not only can parenting and family factors have an effect on a child's interaction with peers, specifically seeking out deviant peers, it can have a significant impact on the child's development (Scott, Briskman, Woolgar, Humayun, & O'Connor, 2011). In this thesis, two types of delinquency are investigated separately, substance use and general delinquent behavior.

Hoeve et al. (2012) conducted a meta-analysis of studies that looked at the link between attachment to parents and delinquency and aggression. Aggression is hostile behavior towards family members; however delinquency can encompass a wider range of behaviors including aggressive behaviors, property offenses, and substance use. The researchers found that poor parental attachment was significantly linked to delinquency in both girls and boys. However, attachment to one's mother had a stronger effect size than attachment to one's father. Also, the effect size was stronger when the parent was of the same gender as the child. The link between attachment and delinquency was stronger when attachment and delinquency were measured at a younger age (Hoeve et al., 2012). As such, this thesis explores whether there are gender differences in parental attachment on delinquency. As attachment appears to be stronger for younger juveniles, this thesis

will measure whether or not there are differences by grade level in the effect of attachment on delinquent behavior. This thesis also controls for whether subjects were in the older or the younger grade level.

Researchers investigating attachment to parents in infants find that insecure attachments lead to aggression and delinquent behavior. Although the measures are typically self-report or reports by parents, attachment to parents of adolescents has also been found to affect delinquent behavior. Strong attachment to parents acts as a factor to reduce risk while weak attachment increases risk for delinquent behavior (Clark & Shields, 1996; Hoeve et al., 2012). Family structure and cohesion can have an impact on one another. For example, a child who lives in a single-parent home, but is strongly attached to his or her one parent is less likely to commit delinquent acts than a child from a two parent home that is very weakly attached to both parents (Leiber, Mack, & Featherstone, 2009). Therefore, even though the family structure is weak for the first child, the family attachment is strong so that parental attachment makes it less likely that the child will engage in delinquency. As such, this thesis will control for family structure in the analyses.

Family attachment was found to have a significant effect on both minor and serious delinquency (Schroeder, Osgood, & Oghia, 2010; Sokol-Katz, Dunham, & Zimmerman, 1997) with similarly stable results being found in other countries (Pauwels, & Svensson, 2010). Results of parental attachment have held true for different races in several studies (Gove & Crutchfield, 1982; Hoeve et al., 2012; Ingram, Patchin, Huebner, McCluskey, & Bynum, 2007), even if general risk of delinquency is higher for non-whites (Ingram, Patchin, Huebner, McCluskey, & Bynum, 2007). The sample used in this

thesis is predominantly white, but differences between whites and non-whites will be controlled. Although attachment has been found to be significant in predicting delinquency in many studies, several researchers have also found different effects depending on gender. Some researchers have found that parental attachment is more significant for boys (Anderson, Holmes, & Ostresh, 1999); while other researchers have found the same results for girls (Gove & Cruthfield, 1982). These differences could be due to differences in the sample or how family variables were operationalized; however, for further clarification, this thesis explores gender differences in how attachment affects risk of delinquency.

Even though Criss and Shaw (2005) only focused on mother and sibling relationships among low socioeconomic status boys and evaluated outcomes based on antisocial behavior rather than substance use or delinquency, they found that siblings can be negative role models and sources of conflict for a child. The impact of sibling relationships may be strongest for siblings of the same gender (sister pairs and brother pairs) rather than mixed sex pairs (Buist, 2010; Slomkowski, Rende, Conger, Simons, & Conger, 2001). Brothers who have warm relationships with delinquent older brothers are also more likely to engage in delinquent behavior (Slomkowski, Rende, Conger, Simons, & Conger, 2001). Sisters who have strong attachment to older sisters are less likely to be delinquent, unless their older sister is delinquent which increases the younger sibling's risk of delinquency (Buist, 2010). These studies show that the relation between sibling attachment and delinquency is not as simple as attachment to parents, because strong attachment to siblings can increase risk for delinquency, rather than decrease it under

certain circumstances. The relation between attachment to mother, father, and siblings and substance use as well as delinquency will be analyzed.

Family Attachment and Substance Use

Supporting Hirschi's (1969) social control theory, in addition to delinquent behavior, attachment to one's family has been shown to have an effect on adolescent substance use. Although substance use is not always considered a form of delinquent behavior, substance use by minors is in fact illegal behavior and therefore a form of delinquency. Having strong familial support is correlated with decreased substance use in adolescents (Kostelecky, 2005). Family attachment has been found to have a significant effect on cigarette, alcohol, and drug use (Bahr, Hoffmann, & Yang, 2005; Sokol-Katz, Dunham, & Zimmerman, 1997). In addition, low attachment has been found to be significantly related to heavier use of alcohol, marijuana (Bahr, Hoffmann, & Yang, 2005; Fallu, Janosz, Brière, Descheneaux, Vitaro, & Tremblay, 2010), nicotine, and multiple drug use (Baer, McLaughlin, Burnside, Pokorny, & Garnezy, 1987).

Attachment to parents has been studied quite extensively with attachment to one or both parents a significant indicator of risk for adolescent substance use in multiple studies (Aseltine, 1995; Bahr, Hoffmann, & Yang, 2005; Fallu, Janosz, Brière, Descheneaux, Vitaro, & Tremblay, 2010; Sokol-Katz, Dunham, & Zimmerman, 1997). Yet some studies have found that attachment to one's mother is more important than attachment to one's father (Aseltine, 1995), similar to the research on measures of attachment and delinquency (Hoeve et al., 2012). The results of the study by Fallu, Janosz, Brière, Descheneaux, Vitaro, and Tremblay (2010) are especially relevant to the

current study, because the sample was drawn from a rural population like the sample used in this thesis.

Researchers that investigate sibling attachment as a measure of family attachment have found a range of significant effects for sibling attachment on the risk for younger siblings' substance use. Younger siblings who are closely attached to their older siblings are generally less likely to engage in substance use. Some researchers have found this effect regardless of whether or not older siblings engage in substance use (East, & Khoo, 2005; Samek, & Rueter, 2011); while other researchers have found that if older siblings engage in substance use, then strongly attached younger siblings will be more likely to engage in substance use (Bahr, Hoffmann, & Yang, 2005). This thesis will investigate the effects of attachment to the sibling closest in age to the subject, but will not control for whether or not the sibling is older or younger than the subject.

In addition to controlling for grade level, this thesis will investigate whether the impact of family conflict on substance use is moderated by the respondent's grade level. As attachment has been found to be stronger for younger adolescents, it is likely to have a larger effect on delinquent behavior (Gorrese & Ruggieri, 2012). Although the effect of attachment between siblings on delinquency was found to be significant, assessment of the effects of gender on sibling attachment and substance use have not been conclusive. Some researchers have not found any significant gender effects or have not looked into effects of gender on sibling attachment and substance use (Duncan, Duncan, & Hops, 1996). Therefore it is important to investigate the relation between gender, attachment, and substance use in this thesis to discover if gender produces any moderating effects.

Family attachment and its effects on juvenile delinquency and substance use fit within the theoretical perspectives provided to explain the connection between family variables and juvenile delinquency. Social control theory examines the degree to which parents bond with their children (Hirschi, 1969). More cohesive families create stronger family bonds and therefore exert stronger informal social control on children than less cohesive families (Fergusson, Swain-Campbell, & Horwood, 2004). In particular, attachment to parents and siblings has been shown to be important in creating social bonds that exert informal social control to prevent delinquent behavior and substance use (Leiber, Mack, & Featherstone, 2009). Informal social control prevents individuals from engaging in delinquency or substance use; however, weak family attachment can erode these social bonds (Zembrowski, 2011). As weak family attachments can lead to increased risk of engagement in delinquency, family conflict can break down social bonds as well as act as a source of strain that can increase adolescents' risk of substance use.

Family Conflict and Delinquency

Family conflict describes the maladaptive or negative inner workings and relationships that exist within a family unit (Herrenkohl & Herrenkohl, 2007). Family conflict increases risk for participation in delinquent behavior. Delinquency has been found to be related to multiple forms of family conflict including child maltreatment, weak parental monitoring, and harsh discipline. Among the multiple forms that child maltreatment can take, child abuse, child neglect, and family dysfunction are most commonly studied (Herrenkohl & Herrenkohl, 2007). This thesis focuses on several forms of family conflict, including conflict between juveniles and their parents as well as

interparental conflict. This thesis investigates what relation exists between these forms of family dysfunction and the risk of delinquent behavior. Longitudinal studies have found evidence to support the hypothesis that family conflict leads to delinquency, rather than delinquency leading to high rates of parent-child conflict (Sigfusdottir, Farkas, & Silver, 2004). Interparental conflict can have direct harmful effects on children and delinquency outcomes, but when coupled with parent-child conflict, the effects are much greater (Bradford, Vaughn, & Barber, 2008). High rates of parental marital conflict in adolescence have also been found to lead to high rates of delinquency in early adulthood and low conflict has been found to lead to lower rates of later delinquency (Klein, Forehand, Armistead, & Long, 1997). In addition, it is possible that sibling conflict can lead to negative outcomes for individuals independent of other measures of family functioning (Criss & Shaw, 2005; Slomkowski, Rende, Conger, Simons, & Conger, 2001). Younger siblings who have hostile or coercive relationships with older siblings are more likely to engage in delinquent behavior themselves (Buist, 2010; Slomkowski, Rende, Conger, Simons, & Conger, 2001).

The impact of family conflict on delinquency has been found to be consistent regardless of the age of the adolescent (Bradford, Vaughn, & Barber, 2008). The literature shows that although older adolescents have better coping skills, they also face higher rates of family conflict which may cancel out any age differences in the impact of family conflict on delinquency (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011). This study will test for any moderating effects of age, as measured by grade level, to further investigate age differences in the effects of family conflict on delinquency. Although gender effects have not been highlighted in this research, the current study

investigates if there are any gender differences in the relation between family conflict and delinquency due to the fact that there is a known gender gap in delinquent behavior (Gault-Sherman, 2013). This thesis investigates the relation between family conflict and substance use as a variable separate from delinquent behavior, because substance use often originates from different processes than other forms of delinquency (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011).

Family Conflict and Substance Use

Parental conflict has been found to be associated with increased substance use in adolescents, even while controlling for family structure, such as living in a two-parent home versus a single-parent home (Musick, & Meier, 2010). Adverse family environments that include family conflict in childhood have been linked to early and heavy alcohol and illicit drug use in adolescence (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011; Skeer, McCormick, Normand, Buka, & Gilman, 2009). Family conflict is a cause of stress that leads many adolescents to turn to substance use as a coping mechanism or form of self-medication (Low, Dugas, O'Loughlin, Rodriguez, Contreras, Chaiton, & O'Loughlin, 2012). Witnessing fights, arguments, and other forms of family conflict can increase feelings of anger which are positively related to delinquent behavior (Sigfusdottir, Farkas, & Silver, 2004).

Sibling conflict has also been found to be a significant risk factor for adolescent substance use (Low, Shortt, & Snyder, 2012) but the results have not been conclusive (Ryan, Jorm, & Lubman, 2010). This thesis looks at how family conflict in general is related to the risk of substance use, as well as any differences found by looking at conflict between the juvenile and his or her mother, father, and siblings. Family conflict in

particular has been found to lead to substance use disorders in females, but not males (Skeer, McCormick, Normand, Mimiaga, Buka, & Gilman, 2011). It is possible that more severe substance use disorders have different etiology than more minor substance use in general (Skeer, McCormick, Normand, Mimiaga, Buka, & Gilman, 2011). In any event, this thesis examines gender to see if there are differences in the way that family conflict impacts risk of juvenile substance use. This thesis will also investigate differences by grade level in the effect of family conflict on substance use as older adolescents report higher rates of family conflict than younger adolescents and it is known that older adolescents engage in higher rates of substance use (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011).

SUMMARY AND REVIEW OF THE LITERATURE

From a strain theory perspective, family conflict is just one type of strain that can be experienced by adolescents and that increases the likelihood that they will engage in delinquent behavior. Family conflict is multifaceted, containing different processes that can affect juvenile delinquency and substance use (Moon, Blurton, & McCluskey, 2008). Parental stress can have a detrimental effect on parenting, especially if it leads to harsh and physical punishments, which can then lead to aggressive and deviant behavior, and which can be passed intergenerationally. In some cases parental stress can lead to child maltreatment or other forms of domestic violence; even if the child is not directly abused, witnessing abuse in the family can lead to deviant behavior (Church, Wharton & Taylor, 2009; Herrenkohl, & Herrenkohl, 2007; Scaramella, Neppl, Ontai, & Conger, 2008). The more strain that a child experiences in their family, the more likely the child is to engage in deviant behavior (Leiber, Mack, & Featherstone, 2009).

Social control theory looks at the degree to which parents exert informal social control on their children (Hirschi, 1969). Children who have good relationships with their parents are more likely to create social bonds with their parents that exert informal social control to reduce the risk that they will engage in delinquent behavior (Leiber, Mack, & Featherstone, 2009). Family conflict, especially with parents, can impede the formation of social bonds, or erode any social bonds that might have been formed between parent and child. Witnessing domestic violence or interparental conflict can erode social bonds, even if it does not directly include the parent or child. Children who experience family conflict are less likely to have strong bonds with their parents and they are more likely to commit delinquent acts (Herrenkohl, & Herrenkohl, 2007).

Family conflict and family attachment apply to strain theory and social control theory respectively to explain differences in propensity to engage in delinquency and adolescent substance use. Strain theory explains that the more strain (in this thesis family conflict) an individual experiences, the more likely they are to engage in deviant behavior and substance use. Social control theory claims that individuals who are strongly attached to their family are less likely to engage in delinquent behavior or substance use. There is some possible overlap in the theories and variables that could lead to interaction effects. From the research, it appears that weak attachment and high family conflict both lead to the high risk of juvenile delinquency and substance use (Clark & Shields, 1996; Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011; Skeer, McCormick, Normand, Buka, & Gilman, 2009). Also, high attachment and low family conflict have been shown to reduce risk for delinquency and substance use (Bahr, Hoffmann, & Yang, 2005; Fallu, Janosz, Brière, Descheneaux, Vitaro, & Tremblay, 2010; Hoeve et al., 2012; Kostecky, 2005). It is possible that high conflict and low attachment could compound to increase the risk for substance use and delinquency.

There are possible gender differences in the way that family conflict and family attachment impact risk for delinquency and substance use. Parental attachment in explaining delinquent behavior has been found to be more significant for boys in some research (Anderson, Holmes, & Ostresh, 1999), while other researchers have found the same results for girls (Gove & Cruthfield, 1982). Attachment to siblings seems to have a larger effect when siblings are of the same gender (Buist, 2010; Slomkowski, Rende, Conger, Simons, & Conger, 2001). As researchers have found attachment variables to have different effects based on gender, it is expected that this will hold true in the current

thesis. However, researchers have not found significant gender differences in the effect of family attachment on substance use (Duncan, Duncan, & Hops, 1996); therefore it is not expected that gender will have a moderating effect on the relation between family attachment and substance use. Similarly, researchers have not found significant gender differences in the effect of family conflict on delinquency. As there is some evidence that family conflict has a stronger effect on female substance use (Gault-Sherman, 2013; Skeer, McCormick, Normand, Mimiaga, Buka, & Gilman, 2011) the current thesis it is expected that family conflict will have different effects on substance use depending on gender.

It is known that during adolescence individuals undergo many psychological, physical, and social changes. This time is also important due to the well-known age-crime curve where criminal behavior peaks at around age 17 (Sweeten, Piquero, & Steinberg, 2013). The subjects in the older age group in this thesis should be at their highest rate of criminal behavior according to this theoretical perspective, while the younger group at around age 14 should be engaging in much lower rates of deviant behavior (Gorrese, & Ruggieri, 2012). This pattern is repeated with substance use, with greater prevalence of substance use being found in older adolescents than younger adolescents (Goncy & Mrug, 2013). In addition, researchers have found that attachment to parents is stronger for younger adolescents than for older adolescents (Gorrese, & Ruggieri, 2012). some researchers even find that family attachment in relation to deviant behavior or substance use based on age was a stronger predictor for younger subjects (Hoeve et al., 2012; Samek, & Rueter, 2011). It is expected that in this thesis that there will be higher rates of delinquent behavior and substance use for subjects in the older

grade level than for the younger subjects due to the different effects of family attachment and conflict for the subjects in each grade level. It is also expected that attachment will have a stronger effect on delinquency and substance use for the younger grade level subjects, but that the effects of family conflict will not have a significant effect as the increased coping skills will be canceled out by the increased family conflict for the older group.

Contributions of Current Thesis

Because the sample used in this thesis was drawn from a rural population, it contributes to the current research due to the fact that most samples in the delinquency and substance use literature come from urban areas. It is important to investigate any unique patterns of delinquency and substance use found in rural samples as opposed to urban samples. The limited research that has been done on rural samples has found that rural youths are engaged in lower rates of delinquency than urban youths (Lyerly & Skipper, 1981). Family variables have been found to have a stronger effect on rural youths than urban youths (Nelson, Coleman, & Corcoran, 2010). Rates of substance use have been rising among rural youths in recent years (Cronk & Sarvela, 1997; Taylor, Merritt, & Austin, 2013) and the use rates may fluctuate depending on the particular substances studied (Coomber, Toumbourou, Miller, Staiger, Hemphil, & Catalano, 2011; Cronk & Sarvela, 1997). As such, this thesis adds to the literature through increased study of delinquency and substance use within a rural sample as well as investigating the effect of family factors on these variables.

This thesis adds to the current literature by examining family attachment and family conflict in the same model. Most previous studies have looked at these variables

as distinct and unrelated factors (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011). This thesis investigates both family attachment and family conflict together to determine whether these variables are distinct or if they interact with one another. This thesis also contributes to the literature by investigating whether one or the other of these variables is more significantly related to substance use or delinquency. The literature on family attachment is very prominent, but some research shows that attachment to family, especially to parents, becomes weaker as individuals age (Gorrese, & Ruggieri, 2012). As such, it is important to also evaluate the contributions of family conflict to determine whether the effects family conflict also decrease with age or if they remain strong through late adolescence.

Hypotheses

Family conflict is one type of strain experienced by adolescents that increases the likelihood that they will engage in delinquent behavior and the more conflict that is experienced, the greater the likelihood that the individual will engage in delinquent behavior or substance use (Leiber, Mack, & Featherstone, 2009). Adolescents who are strongly attached to their family have social bonds with their parents that exert informal social control to reduce the risk that they will engage in delinquent behavior (Leiber, Mack, & Featherstone, 2009). From the research and theoretical perspectives, it appears that weak attachment and high family conflict leads to the high risk of juvenile delinquency and substance use and that high attachment and low family conflict reduce risk for delinquency and substance use (Bahr, Hoffmann, & Yang, 2005; Fallu, Janosz, Brière, Descheneaux, Vitaro, & Tremblay, 2010; Hoeve et al., 2012; Kostecky, 2005). Researchers have found gender differences in the relation between attachment and

delinquency as well as between conflict and substance use and it is expected that this pattern will continue in this thesis (Duncan, Duncan, & Hops, 1996). Due to the developmental differences previously discussed, it is also expected that the family variables will have different effects depending on the grade level of the subjects (Sweeten, Piquero, & Steinberg, 2013).

As informed by a review of the current literature, my hypotheses are as follows:

- Hypothesis 1: There will be a negative relation between family attachment and delinquency.
- Hypothesis 2: There will be a negative relation between family attachment and substance use.
- Hypothesis 3: There will be a positive relation between family conflict and delinquency.
- Hypothesis 4: There will be a positive relation between family conflict and substance use.
- Hypothesis 5: There will be an interaction effect where low scores on family attachment measures and high scores on family conflict measures increase risk for delinquent behavior when both are present.
- Hypothesis 6: There will be interaction effects where low scores on family attachment measures and high scores on family measures increase risk for substance use when both are present.
- Hypothesis 7: Familial attachment will have different effects on risk of delinquency (but not substance use) for males and females.

- Hypothesis 8: Family conflict will have different effects on substance use (but not delinquency) for males and females.
- Hypothesis 9: Family attachment, but not family conflict, will have a weaker effect on substance use and delinquency for the older group.

METHOD

Sample

The sample used in this thesis was the second wave of data from the “Rural Youth Survey” (RYS), which is a panel study of two groups of students from all public schools in a rural county in New Hampshire (Van Gundy, Stracuzzi, Rebellon, Tucker, & Cohn, 2011). This thesis uses data from the second wave of the RYS (n=677, 86 percent response rate), which includes cross-sectional survey data from paper and pencil questionnaires given to 8th (n=344, 50.82 percent) and 12th grade (n=333, 49.19 percent) students in spring 2009. Unless otherwise specified, observations missing data for the variables used in the multivariate analyses were eliminated. The total sample size after eliminations was 532, mostly non-Hispanic white (6.58 percent non-White) divided evenly by grade level (47.37 percent younger grade, n=252) and sex (53.20 percent female). Table 1 reports the means and proportions of the variables used in this thesis.

Table 1. Means and Proportions of the Study Variables (n=532).

Delinquency = 1	0.38
Substance Use = 1	0.49
White = 1	0.93
Female = 1	0.53
Grade 8 = 1	0.47
Live with Both Parents = 1	0.59
Parents are Married = 1	0.54
Age	15.86
SES ^a	0.02

^a Standardized scores (z-scores).

Measures

A full list of the items used for all measures is included in the Appendix.

Delinquency and Substance Use. The dependent variable of delinquency was created from thirteen items in which respondents were asked to give the number of times in the past six months they had participated in different delinquent activities. Some examples of the delinquency items include asking how often in the past six months respondents had “taken something from a store without paying for it” or “set fire to property that did not belong to you.” Due to the fact that delinquency measures were highly skewed, a dummy-coded variable was created, categorizing responses as delinquent if respondents indicated participation in any of the delinquency items at least one time in the previous six months. Non-delinquents, scored 0, were those respondents who did not participate in any of the delinquent acts measured (62.03% of sample). A similar process was used in creating the measure for substance use. While substance use is illegal for juveniles, this type of activity often functions distinctly from other forms of illegal activity (Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011). Again, a dummy-coded variable was created from a six-item scale that categorized respondents as substance users if they used any substance (not including tobacco), scored 1, at least once within the six months prior to the survey (49.44% of sample).

Family Attachment. Three measures created for family attachment include attachment to siblings, mothers or female guardians, and fathers or male guardians. For sibling attachment, the survey asked respondents to rate their relationship to the sibling that was closest in age to the respondent. The five items were statements and respondents indicated how much the items reflected their relationship from 1 “not at all” to 4 “a lot.” Some sample items include “I talk with my sibling about my problems” and “I go to my brother/sister for advice or support.” The responses to these questions were averaged and

standardized (scores ranged from -1.88 to 1.61; Cronbach (1951) alpha is 0.88). For attachment to mother or female guardian and attachment to father or male guardian there were five items each with responses ranging from 1 “strongly disagree” to 5 “strongly agree.” Sample items include “I feel close to my father” and “I really enjoy spending time with my mother.” Again, responses to these measures were averaged and standardized. Minimum scores for attachment to mother ranged from -2.69 to maximum scores of 1.29 (Cronbach alpha is 0.89) and scores for attachment to father ranged from -2.06 to 1.56 (Cronbach alpha is 0.89). The three attachment measures were combined to create a total measure for family attachment by averaging and re-standardizing the three scores (minimum and maximum scores of composite attachment scale ranged from -2.88 to 2.09).

Family Conflict. Similar measures were created for family conflict including a measure for sibling conflict, conflict with mother, and conflict with father. For all three types of conflict, the responses to the questions were averaged and standardized. Again, these composite measures were combined to create a measure for family conflict in general by averaging the means and standardizing the composite mean. For sibling conflict the survey asked respondents to respond how often they engaged in conflict with their sibling with responses ranging from 1 “not at all” to 5 “almost all the time.” The eighteen items include “reacted angrily when your brother/sister provoked you” and “damaged your brother/sister’s things because you felt mad.” Range of the standardized mean was between -1.46 and 3.79; Cronbach alpha is 0.93. For conflict with mother or female guardian and conflict with father or male guardian, there were four items asking how often in the last month certain events had occurred with responses ranging from 1

“never” to 4 “at least once a day.” The range for standardized minimum and maximum scores for female guardian was -1.38 to 2.27 (Cronbach alpha was 0.90) and -1.02 to 2.75 (Cronbach alpha was 0.90) for male guardian. Sample items include “gotten angry at you” and “shouted or yelled at you.” The four conflict measures were combined to create a total measure for family conflict (standardized minimum and maximum scores ranged from -1.67 to 3.27).

Statistical Controls. There are several control variables used in this thesis including female, which is a dummy-coded variable coded 0 for male and 1 for female (52.88% female). Grade level is split into older (grade 12) and younger (grade 8) by using a dummy-coded variable younger where grade 8 is scored as 1 and grade 12 is scored as 0 (47.37% grade 8). SES is a composite measure of the standardized scores of the highest education level for mother/female guardian (ranging from 1 “less than high school” to 6 “graduate or professional degree”), highest education level for father/male guardian (ranging from 1 “less than high school” to 6 “graduate or professional degree”), and financial situation (from 1 “very little money available” to 5 “lots of money available”). This measure was created by averaging the standardized scores of the three SES measures and re-standardizing the scores which ranged from -2.27 to 2.85. Ethnicity was created from a dummy-coded measure where all respondents who listed their race/ethnicity as white were coded as a 1 and all other races or ethnicities were coded as 0 (93.42% white). Parent’s marital status which was coded where 1 was “married to each other” and 0 for all other answers (58.83% of the sample scored 1). Living situation was coded as 1 “living with both parents” and 0 “not living with both parents”: 57.32% of the sample scored 1.

Analytic Strategy

A series of logistic regressions were conducted that regressed the dependent variables of delinquency and substance use on the independent variables of family attachment and family conflict. First delinquency was regressed on family attachment and control variables. Then delinquency was regressed on family conflict. Another equation looked for interaction effects between family attachment and conflict (family attachment X family conflict) by regressing delinquency on family attachment, family conflict, and family attachment X family conflict. The same analyses were conducted for substance use by regressing substance use on both family variables separately, both family variables together, and then on both family variables as well as attachment X family conflict. As gender was hypothesized to have a moderating effect on delinquency and substance use, first delinquency and then substance use were regressed on gender and then on corresponding interaction variables (gender X delinquency and gender X substance use). As grade level was also hypothesized to have a moderating effect on delinquency and substance use, first delinquency and then substance use were regressed on grade level and then on corresponding interaction variables (grade level X delinquency, grade level X substance use, and grade level X living with both parents).

RESULTS

Table 2 shows partial support for hypotheses 1 and 2 as there was a significant ($p < 0.05$) negative relation between family attachment and both delinquent behavior and substance. However, the significant relation between attachment and the dependent variables disappeared when controlling for family conflict. Hypotheses 3 and 4 were fully supported as family conflict was found to be significantly ($p < 0.001$) and positively related to both delinquent behavior and substance use. This relation remained even when controlling for family attachment and any possible interaction effects. Hypotheses 5 and 6 were not supported as there were no significant interaction effects between family attachment and family conflict for either substance use or delinquent behavior. Ethnicity, gender, and socioeconomic status remained nonsignificant for all analyses.

The variable used to measure living situation, living with both parents, also had a significant ($p < 0.05$) negative relation to delinquent behavior as well as substance use ($p < 0.01$). In separate analyses not shown, it was found that the variable for parents' marital status was highly inter-correlated (0.72) with the variable for living situation and the inclusion of both variables in the model lead to unstable results. Family structure, where children live with both parents, may be a better indicator of whether children have strong attachments to their parents. Family breakup is very stressful for children whether or not the parents were ever married (Holmes, Jones-Sanpei, & Day, 2009). Family

Table 2. Effects of Family Attachment and Conflict on Delinquent Behavior and Substance Use (n=532).

	Delinquent Behavior				Substance Use			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
White = 1	0.93	0.93	0.93	0.92	0.99	0.98	0.99	0.98
Female = 1	0.95	0.95	0.95	0.97	0.99	0.96	0.97	1.00
Grade 8 = 1	1.45	1.19	1.19	1.19	0.19***	0.15***	0.15***	0.15***
SES	0.90	0.87	0.87	0.87	1.03	0.99	1.01	1.01
Live with Both Parents = 1	0.68*	0.62*	0.62*	0.63*	0.53**	0.49**	0.50**	0.51**
Family Attachment	0.79*	--	0.99	0.98	0.79*	--	0.91	0.92
Family Conflict	--	2.16***	2.16***	2.21***	--	1.68***	1.64***	1.68***
Attachment*Conflict Interaction	--	--	--	1.14	--	--	--	1.13

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting delinquent behavior in the past six months (Equations 1 to 4) and the odds ratios predicting substance use in the past six months (Equations 5 to 8).

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3. Effects of Family Attachment and Conflict on Delinquent Behavior and Substance Use for the Older Grade Level (n=280).

	Delinquent Behavior				Substance Use			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
White = 1	0.60	0.58	0.57	0.53	1.43	1.37	1.40	1.32
Female = 1	1.01	0.99	0.98	1.00	0.72	0.68	0.68	0.70
SES	0.86	0.84	0.82	0.83	1.17	1.13	1.16	1.17
Live with Both Parents = 1	0.57*	0.52*	0.50*	0.50*	0.39**	0.34***	0.35**	0.36**
Family Attachment	0.90	--	1.09	1.10	0.82*	--	0.93	0.97
Family Conflict	--	1.97***	2.02***	2.09***	--	1.61***	1.58**	1.59**
Attachment*Conflict Interaction	--	--	--	1.21	--	--	--	1.19

Note: Equations are in parentheses in column headings. The table presents odds ratios predicting delinquency in the past six months (Equations 1 to 4) and the odds ratios predicting substance use in the past six months (Equations 5 to 8).

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

structure is also important as family conflict within the home that is witnessed by the child may have a greater effect due to the constant stress of a situation that is difficult to escape (Sigfusdottir, Farkas, & Silver, 2004). In analyses not shown, the same analyses that were run in Table 2 were also run with the marital status variable, but the results were not as strong for this variable. For these reasons, only living situation was used as a control variable and parents' marital status was dropped from the analyses. In addition to the significant results found for living with both parents, age as measured by grade level was also significant. In particular there was a significant ($p < 0.001$) negative relation between being in the younger grade and engaging in substance use.

Analyses for the individual grades were also run to determine if there were any significant within-grade effects that would support the proposed hypotheses, which were unsupported by analyses of the total sample. Table 3 shows the results of the analyses for the older grade. These results in Table 3 for the older grade are quite similar to those in Table 2, with some minor differences. Notably, family attachment was not significantly related to delinquent behavior as was found in the analysis for the total sample. Also living with both parents had a greater negative relation to substance use ($p < 0.001$) (without controlling for family attachment) for the older group alone than the total sample ($p < 0.01$). The finding, supportive of hypotheses 3 and 4, that family conflict had a significant positive relation with both substance use and delinquent behavior was also found in the analyses of the older group. However, family conflict had a less significant positive relation to substance use for the older grade ($p < 0.01$) than for the total sample ($p < 0.001$) when controlling for family attachment and interaction effects. The apparent reduced significance level may be due to the reduced sample size, and therefore

power, required to find the same effect size. Within the older grade alone there were no significant interaction effects found between family conflict and family attachment.

The differences between the general sample and the younger grade were more pronounced than for the older group. The results of the analyses of the younger group are collected in Table 4. Unlike the total sample and the older grade, living with both parents was not significant for the younger grade for any of the analyses. Family attachment had a significant ($p < 0.05$) negative relation to delinquent behavior for both the total sample and younger group. However, family attachment was not significantly related to substance use for the younger group as it was in the general sample. As in the total sample and the older group, the analyses of the younger grade level were supportive of hypotheses 3 and 4 as family conflict had a significant positive relation with both substance use and delinquent behavior. Similar to the older grade level and the total sample, hypotheses 5 and 6 were not supported as there were no significant interaction effects found between family conflict and family attachment.

Although there were no main effects found for gender, analyses were run looking for interaction effects between gender and family attachment as well as between gender and family conflict. These interaction effects were looked at in terms of the relations to both juvenile delinquency and substance use. Gender was not found to be significant and there were no significant interactions found between delinquency and gender, however there was a significant interaction effect between gender and family attachment for substance use. These results do not support hypotheses 7 and partially support hypothesis 8. Hypothesis 7 did not expect to find different effects by gender for family

Table 4. Effects of Family Attachment and Conflict on Delinquent Behavior and Substance Use for the Younger Grade Level (n=252).

	Delinquent Behavior				Substance Use			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
White = 1	1.12	1.11	1.11	1.11	0.77	0.75	0.75	0.76
Female = 1	0.89	0.93	0.94	0.96	1.48	1.54	1.55	1.64
SES	0.95	0.91	0.93	0.92	0.87	0.84	0.86	0.85
Live with Both Parents = 1	0.77	0.77	0.78	0.78	0.75	0.74	0.75	0.76
Family Attachment	0.70*	--	0.93	0.91	0.75	--	0.93	0.87
Family Conflict	--	2.42***	2.38***	2.41***	--	1.81***	1.77***	1.85***
Attachment*Conflict Interaction	--	--	--	1.08	--	--	--	1.18

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting delinquent behavior in the past six months (Equations 1-4) and the odds ratios predicting substance use in the past six months (Equations 5 -8).

* p < 0.05; ** p < 0.01; *** p < 0.001

Table 5. Moderating Effects of Gender on Family Attachment, Family Conflict on Delinquent Behavior and Substance Use (n=532).

	Delinquent Behavior			Substance Use		
	(9)	(10)	(11)	(12)	(13)	(14)
White = 1	0.95	0.92	0.95	1.03	0.94	0.99
Female = 1	0.95	0.94	0.94	0.98	0.97	0.96
Grade 8 = 1	1.45*	1.19	1.19	0.18***	0.15***	0.15***
SES	0.90	0.87	0.87	1.02	0.99	1.00
Live with Both Parents = 1	0.68*	0.62*	0.62*	0.54**	0.49**	0.49**
Family Attachment	0.73*	--	0.84	0.69*	--	0.74
Family Conflict	--	2.09***	2.05***	--	1.47**	1.40*
Attachment*Gender Interaction	1.15	--	1.39	1.03	--	1.58*
Conflict*Gender Interaction	--	1.07	1.16	--	1.30	1.47

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting gender effects on delinquent behavior (Equations 9 - 11) and the odds ratios predicting gender effects on substance use (Equations 12 - 14).

* p < 0.05; ** p < 0.01; *** p < 0.001

attachment and substance use which was not supported by the results as there was a significant ($p < 0.05$) interaction between substance use and attachment when controlling for family conflict and conflictXgender interactions. This hypothesis also expected to find significant gender differences in the relation between attachment and delinquency which was not supported.

Hypothesis 8 was supported as no significant gender differences were found in the relation between delinquent behavior and family conflict. However, the hypothesized gender difference in the relation between family conflict and substance use was not found and this part of hypothesis 8 was not supported. As with the general analyses in Table 2, attachment had a significant ($p < 0.05$) negative relation to delinquent behavior and substance use. Living with both parents also had a significant ($p < 0.05$) negative relation to delinquent behavior and ($p < 0.01$) substance use as was found in the general analyses. Family conflict was significantly ($p < 0.001$) positively related to delinquent behavior and ($p < 0.01$) substance use (compared to $p < 0.001$ in the initial results). Unlike the initial analyses in Table 2 age, as measured by grade level, was significantly positively ($p < 0.05$) related to risk for delinquent behavior for family attachment.

As family attachment and family conflict had different effects on delinquent behavior and substance use in the previous analyses, it lends support to the idea that attachment and conflict may be distinct constructs. To further investigate this finding analyses were run to determine if there were any patterns to the type of attachment or conflict effects that were significant. The literature shows that it is possible for attachment to siblings to increase risk for delinquency and substance use so thesis looks at sibling attachment separately to see if high attachment to siblings increases or

decreases risk for delinquent behavior and substance use. The literature has also shown that attachment to mother had stronger relations to delinquency than attachment to other family members (Criss & Shaw, 2005; Hovee et al., 2012). The individual components of family attachment, attachment to mother, father, and siblings were separated to evaluate the significance of each type of attachment. The same was done with the composite score for family attachment where conflict with mother, father, and siblings were evaluated as distinct variables as the literature has often found significant effects for each type of family conflict. The results of these analyses are contained in Table 6. In order to ensure that these were distinct constructs, analyses (not shown) were run that found that the only variables that were highly inter-correlated were conflict with mother and conflict with father (0.46).

When looking at delinquent behavior, attachment to mother had a negative relation ($p < 0.01$) to delinquency. However, conflict with siblings ($p < 0.001$) and father ($p < 0.01$) both had positive relations to delinquent behavior. Attachment to mother ($p < 0.01$) and to father ($p < 0.05$) both had negative relations to substance use while attachment to siblings had a significant ($p < 0.05$) positive relation to substance use. Conflict with siblings and father both had a significant ($p < 0.05$) positive relation to substance use. When controlling for all forms of family conflict, attachment to mother is no longer significantly related to delinquent behavior and attachment to mother and father are no longer significantly related to substance use.

These analyses were repeated looking at each individual grade level due to the repeated significance of grade level in the analyses and the possibility of within-group differences. The results for the older group are summarized in Table 7. There were

Table 6. Effects of All Types of Attachment and Conflict on Delinquent Behavior and Substance Use (n=532).

	Delinquent Behavior			Substance Use		
	(1)	(2)	(3)	(4)	(5)	(6)
White = 1	0.93	0.92	0.91	1.02	0.99	1.01
Female = 1	0.87	1.02	0.95	0.85	0.99	0.87
SES	0.94	0.88	0.90	1.07	0.99	1.06
Younger = 1	1.53*	1.14	1.20	0.19***	0.15***	0.15***
Live with Both Parents = 1	0.67*	0.62*	0.62*	0.54**	0.47**	0.51**
Sibling Attachment	1.14	--	1.23	1.26*	--	1.31*
Attachment to Mother	0.70**	--	0.83	0.72**	--	0.79
Attachment to Father	0.90	--	0.97	0.77*	--	0.81
Sibling Conflict	--	1.76***	1.79***	--	1.31*	1.31*
Conflict with Mother	--	1.13	1.07	--	1.10	1.04
Conflict with Father	--	1.45**	1.44**	--	1.39*	1.37*

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting delinquent behavior in the past six months (Equations 1-3) and the odds ratios predicting substance use in the past six months (Equations 4-6).

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 7. Effects of All Types of Attachment and Conflict on Delinquent Behavior and Substance Use for the Older Grade Level (n=280).

	Delinquent Behavior			Substance Use		
	(1)	(2)	(3)	(4)	(5)	(6)
White = 1	0.59	0.64	0.61	1.56	1.45	1.59
Female = 1	0.94	1.10	1.02	0.63	0.70	0.62
SES	0.88	0.84	0.85	1.18	1.13	1.17
Live with Both Parents = 1	0.58	0.45**	0.44*	0.43**	0.32***	0.38**
Sibling Attachment	1.19	--	1.30	1.17	--	1.22
Attachment to Mother	0.81	--	0.82	0.96	--	1.02
Attachment to Father	0.92	--	0.99	0.66*	--	0.68*
Sibling Conflict	--	1.62**	1.67**	--	1.38	1.37
Conflict with Mother	--	0.84	0.78	--	0.97	0.97
Conflict with Father	--	1.86***	1.90***	--	1.43*	1.42*

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting delinquent behavior in the past six months (Equations 1 - 3) and the odds ratios predicting substance use in the past six months (Equations 4 - 6).

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

several differences in the significance of family attachment variables for this group as compared to the total sample. Attachment to mother and siblings was no longer significant for any analyses, however attachment to father was still significantly related to substance use ($p < 0.05$). The level of significance for the relation between delinquent behavior and conflict with siblings and father were switched. Conflict with father was the only conflict variable to have a significant relation with substance use. These results remained the same when all forms of attachment and all forms of conflict were added to the model together.

The results for the younger grade level are summarized in Table 8 and were very similar to those for the total sample. Attachment to mother had a less significant relation to delinquent behavior but a more significant relation to substance use than the total sample. For this group, conflict to mother and siblings were significantly related to delinquent behavior as opposed to conflict with sibling and father in the total sample. No conflict variables were significantly related to substance use in the younger group. When controlling for all forms of family conflict, attachment to mother was no longer significantly related to delinquent behavior. When controlling for all forms of family conflict, attachment to mother ($p < 0.001$) was less strongly related to substance use ($p < 0.01$).

Due to possible developmental differences between middle and older adolescents, analyses were run to look for possible interaction effects between grade level and the dependent variables, as well as the family structure variable. These results are presented in Table 9, which show that living with both parents was significantly negatively related to delinquent behavior ($p < 0.05$) and substance use ($p < 0.01$). As was reported in table 2.

Table 8. Effects of All Types of Attachment and Conflict on Delinquent Behavior and Substance Use for the Younger Grade Level (n=252).

	Delinquent Behavior			Substance Use		
	(1)	(2)	(3)	(4)	(5)	(6)
White = 1	1.13	1.06	1.06	0.75	0.75	0.72
Female = 1	0.81	1.02	0.92	1.29	1.56	1.39
SES	1.00	0.91	0.95	0.94	0.84	0.92
Live with Both Parents = 1	0.73	0.84	0.82	0.70	0.73	0.71
Sibling Attachment	1.12	--	1.24	1.40*	--	1.42*
Attachment to Mother	0.62*	--	0.83	0.52***	--	0.61**
Attachment to Father	0.89	--	0.92	0.94	--	1.00
Sibling Conflict	--	1.85***	1.87***	--	1.32	1.29
Conflict with Mother	--	1.68**	1.63**	--	1.25	1.13
Conflict with Father	--	1.03	0.99	--	1.33	1.29

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting delinquent behavior in the past six months (Equations 1 - 3) and the odds ratios predicting substance use in the past six months (Equations 4 - 6).

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 9. Conditional Effects of Family Attachment and Family Conflict by Grade Level on Delinquent Behavior and Substance Use (n=532).

	Delinquent Behavior				Substance Use			
	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
White = 1	0.92	0.92	0.91	0.90	0.99	0.99	0.96	0.96
Female = 1	0.95	0.96	0.96	0.96	0.97	0.98	0.98	0.98
Grade 8 = 1	1.19	1.16	0.92	0.88	0.15***	0.15***	0.10***	0.10***
SES	0.87	0.87	0.87	0.87	1.01	1.01	1.01	1.01
Live with Both Parents = 1	0.92*	0.62*	0.50*	0.49*	0.50**	0.51**	0.38**	0.38**
Family Attachment	1.04	1.00	1.01	1.07	0.97	0.92	0.93	0.96
Family Conflict	2.16***	1.95***	2.18***	2.00***	1.63***	1.52**	1.66***	1.56**
Grade*Family Attachment	0.91	--	--	0.89	0.97	--	--	0.93
Grade*Family Conflict	--	1.24	--	1.19	--	1.15	--	1.12
Grade*Living with Both Parents	--	--	1.58	1.65	--	--	1.78	1.83

Note: Equations are in parentheses in column headings. The table presents logistic regression odds ratios predicting gender effects on delinquent behavior (Equations 15 - 18) and the odds ratios predicting gender effects on substance use (Equations 19 - 22).

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

there were main effects for grade level as risk of substance use was significantly higher for the older grade level ($p < 0.001$). Family attachment was not significantly related to either delinquency or substance use as all analyses also controlled for family conflict, which was significantly positively related to delinquency ($p < 0.001$) and substance use ($p < 0.01$ - $p < 0.001$). Despite significant main effects for living with both parents there were no significant interaction effects with grade level found in the analyses. Hypothesis 9 was partially supported as it was expected that there would be an interaction effect between grade and family attachment for both delinquency and substance use. However, no significant interaction effects were found. Hypothesis 9 also did not expect to find any differences by grade level in the impact of family conflict on the family variables and this part of the hypothesis was supported as no significant interaction effects found for these variables.

DISCUSSION

In this thesis family attachment as a measure of social control and family conflict as a measure of strain were investigated to determine their effect on juvenile delinquency and substance use. This thesis also explored possible gender differences in the way that these family variables impact risk for delinquency and substance use. Moderating effects by grade level on the relation between family variables and delinquency behavior and substance use were assessed.

It was expected that the results would show a negative relation between family attachment and delinquency as well as substance use. Much of the literature focuses on attachment to family, especially to one's mother or female guardian as a key factor in juvenile's risk for engaging in deviant behaviors (Aseltine, 1995; Hoeve et al., 2012). The idea that attachment is so important in restraining individuals from committing delinquent acts comes from control theory where attachment is thought to exert informal social control over the individual (Hirschi, 1969). In this thesis, these relations were present initially, but were no longer significant after controlling for family conflict. As in the general analyses, the analyses of the individual attachment and control variables found that when controlling for the individual conflict variables, the separate attachment variables were no longer significant (with the exception of attachment to siblings for substance use).

It was hypothesized that family conflict would be positively related to both delinquent behavior and substance use which was supported by the findings. Family conflict was a significant predictor of delinquency and substance use risk even while controlling for family attachment and when testing for possible interaction effects

between conflict and attachment. This finding was expected as family conflict was used as a measure of strain, and as strain theory explains, the more strain an individual experiences the more likely he or she is to engage in delinquent behavior as a method of coping with this stress. Strain theory explains that instead of informal social control restraining individuals from engaging in delinquent behavior (as is predicted by social control theory), experiencing strain pushes individuals to engage in criminal behavior by creating negative emotional states that require coping (Cullen & Agnew, 2003; Agnew, 1992).

My review of the literature suggested that strong attachment to one's family reduces risk, while weak attachment increases risk of engaging in substance use and delinquent activity (Aseltine, 1995; Bahr, Hoffmann, & Yang, 2005; Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011; Fallu, Janosz, Brière, Descheneaux, Vitaro, & Tremblay, 2010; Hoeve et al., 2012; Kostelecky, 2005; Skeer, McCormick, Normand, Buka, & Gilman, 2009; Sokol-Katz, Dunham, & Zimmerman, 1997). Similarly, it was suggested that high family conflict increases risk while low family conflict decreases risk of substance use and delinquency (Buist, 2010; Criss & Shaw, 2005; Fagan, Lee Van Horn, Antaramian, & Hawkins, 2011; Low, Shortt, & Snyder, 2012; Moon, Blurton, & McCluskey, 2008; Skeer, McCormick, Normand, Buka, & Gilman, 2009; Slomkowski, Rende, Conger, Simons, & Conger, 2001). Taken together, the literature suggested that there would be an interaction effect between family attachment and family conflict such that when attachment was high and conflict was low, risk would be greatly reduced, and when attachment was low and conflict was high, risk would be greatly increased. However, none of the hypothesized interaction effects were found between family

conflict and family attachment for either delinquent behavior or substance use in any of the analyses.

There are several possible explanations for not finding the hypothesized interaction between family attachment and family conflict. It is possible that rather than the two family variables interacting with one another, one family variable may lead to the other. As family conflict was found to have stronger effects on risk for delinquency and substance use, it is possible that poor family attachment in early life leads to the high family conflict measured in this thesis. It is possible that because the effects of family attachment were no longer significant when family conflict was added to the model that the stress and strain of family conflict could be driving attachment effects seen in the literature. It may also be that the family variables included in this thesis are actually measuring different aspects of a third variable. As family conflict was found to be a more significant predictor of risk for involvement in delinquency and substance use, it is possible that family conflict is a better measure of this third variable.

Another explanation for the prominence of family conflict found in the thesis results is developmental differences. Due to the age difference in the adolescents studied, there may be differences in the ways that the family variables influence risk for delinquency and substance use, even though there were no direct interaction effects found between grade level and the family variables. It is possible that developmental changes may be driving the weak effect of the link between family attachment and delinquency and substance use (Hoeve et al., 2012). As adolescents age they often shift their attachments from parents to peers, then later to significant others and their own families (Sampson & Laub, 1993).

The results of the analyses of individual attachment and conflict measures found that although attachment to mother and father had the expected negative relation to problem behaviors, attachment to siblings had a positive relation to both delinquency and substance use. It is possible that siblings are modeling their behaviors after substance using siblings (Bahr, Hoffmann, & Yang, 2005; Buist, 2010). These results may lend support to the theoretical concept that attachment shifts from parents to peers as adolescents age, as attachment to siblings may be function more like attachment to peers than attachment to parents. Social control theory predicts that strong attachment to family, even to substance using or delinquent siblings, is always equated with reduced risk for deviant behavior. However, the results are more in line with social learning and differential association theories which explain that increased association with and attachment to deviant peers, in this case siblings, leads to increased risk (Burgess & Akers, 1966).

As the research thus far has been mixed as to the effects of gender on substance use and delinquency, it was hypothesized that family attachment would produce different effects on males' and females' risk for delinquency but not for substance use. The results showed the opposite as there was a significant interaction between gender and family attachment for substance use, but not delinquency, after controlling for family conflict. It was also expected that family conflict would produce different risk for substance use for males and females but not for delinquency. As no significant gender differences in the effect of family conflict on delinquency or substance. the hypothesized gender difference in risk of substance use was not supported by the data. However, the lack of gender differences in the effect of family conflict on delinquency risk was supported. The lack of

gender effects found in the results is not surprising as the literature has been inconsistent, with some studies finding gender differences (Anderson, Holmes, & Ostresh, 1999; Gove & Cruthfield, 1982; Hoeve et al., 2012) while others have not (Duncan, Duncan, & Hops, 1996; Gault-Sherman, 2013). The results of this thesis add to the list of studies that have not found gender differences in the effects of family variables on delinquency and substance use.

The implications of the main findings and results of this thesis are that family attachment and family conflict are significant predictors of risk for substance use and delinquency in this sample, with family conflict being a stronger predictor than family attachment. If family conflict is driving children to engage in deviant behavior or substance use, this information is important for interventions aimed at reducing or preventing juvenile delinquency. One promising avenue of research is altering parenting practices and effectiveness to promote better socialization of the child and reduce engagement in negative outcomes (Burt, Simons, & Simons, 2006). Interventions to reduce parental and familial conflict should reduce the strain on adolescents and in turn reduce their need for coping via delinquent behavior or substance use.

Some limitations of this thesis include the fact that this thesis utilizes cross-sectional data, uses secondary data analysis, and employs only a rural sample. Due to the nature of cross-sectional research, no temporal order can be assigned to the variables. Being able to assign a chronological order to the variables would allow there to be inferences drawn as to which variables may cause changes in other variables. With cross-sectional data, the analyses are limited to showing whether or not a relation exists and not which variable in the relation is driving the changes in the other. As this thesis uses data

from a survey that already existed, it limited the types or analyses that could be done and the possible variables that could be included in the analyses. This thesis employs a rural sample which is useful in increasing the knowledge about the unique patterns of substance use and delinquency among rural youth. However, as this thesis does not use a comparable sample of urban or non-rural youths, it is impossible to make any comparisons between these populations.

Further research would benefit from addressing the limitations of this thesis. Longitudinal and primary data would allow for richer analyses and the possibility of assigning a temporal order to the variables used. The use of longitudinal data would allow for inferences into cause and effect relations to be made. It would be possible to determine whether attachment to family or family conflict change over time. Being able to control for previous substance use and delinquency levels would also allow researchers to determine how levels of these variables fluctuate or remain stable over time and in relation to family variables. By studying the patterns of both family variables and outcome variables over time would allow for more solid inferences into the reason why family conflict was found to be so strongly related to risk of deviant behavior in this thesis. Future research would be able to determine whether family attachment leads to family conflict or vice versa. Adding younger individuals to the sample would allow for expanded ability to determine if there are any developmental changes in family conflict or family attachment as individuals age.

In addition to using longitudinal data, primary data collection is crucial in gaining a better understanding of the impact of family variables on delinquency and substance use. This thesis found greater support for strain theory than social control as family

conflict was a better predictor of risk for substance use and delinquent behavior than family attachment. However, in order to better gauge which theory provides a better explanation as to why juveniles engage in delinquency and substance use it would be necessary to test all parts of each theory, not just one measure from each theory. For social control theory this would require testing attachment, involvement, belief, and commitment to family, school, and religious institutions. More thoroughly testing strain theory would require evaluating a far more extensive list of straining events and life situations that encompass

In order to better determine whether attachment to siblings is the result of modeling effects, measures could be created to measure sibling substance use and delinquent behavior. It would also be helpful to gather data on all siblings, not only the sibling that is closest to the subject in age. These questions would allow researchers to investigate differences in the effect of sibling attachment and conflict depending on whether the sibling is older or younger than the respondent. Another interesting avenue for future research would be to see if family variables have different effects on children with siblings versus only children. For parental attachment and conflict it would be interesting to see whether there are differences in the impact of these family variables on risk for delinquency and substance use if children are from single parent or two parent homes, or whether living with two parents has the same effect regardless of whether or not the parents are biologically related to the respondent.

As only a rural, but not an urban, sample was used in this thesis, future research would be useful for exploring the differences between rural and urban adolescent delinquency and substance use. The literature review suggested that rural adolescents use

substances and engage in other forms of delinquency behavior at a lower rate than urban juveniles (Farrell, Sullivan, Esposito, Meyer, & Valois, 2005; Lysterly & Skipper, 1981). Not only do levels of substance use and delinquency vary between urban and rural populations, but the family variables may act differently (Nelson, Coleman, & Corcoran, 2010). Future research that compares these populations could delve further into the ways that family variables themselves differ, but investigate any differences in how they influence delinquent behavior and substance use. It would also be interesting to not if there are any differences in the types of substances used or the rates of different types of delinquent behavior between rural and urban youths.

Family is such a crucial factor in child development that variables such as family attachment and family conflict should not be overlooked in these analyses. As family attachment was not found to be as strongly correlated to delinquent behavior and substance use as family conflict, future studies could help to investigate how these two family variables are related. Future research would be valuable for investigating the differences seen in attachment to siblings versus attachment to parents and the effects this may have on deviant behavior, as well as the underlying processes that may cause these differences, such as modeling effects (Bahr, Hoffmann, & Yang, 2005; Buist, 2010). Although this thesis did look for interactions by grade and possible within-group differences by grade level, further research would be useful to see if the level of attachment or family conflict changes over time. Future research would also be useful in untangling the inconclusive data surrounding gender differences in the effects of family variables on delinquent behavior and substance use.

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APENDIX

Demographics:

- Grade: w2a1
- Sex: w2a2
- Age: w2a3
- Race: w2a4
- Marital Status: w2a5
- Living Situation: w2a6
- SES:
 - Mother's education: w2a10
 - Father's education: w2a11
 - Family financial situation: w2ff1

Delinquency:

- In the past 6 months, how many times have you:
 - taken something from a store without paying for it? w2hh1
 - other than from a store, taken something not belonging to you? w2hh2
 - intentionally damaged or destroyed someone's property that did not belong to you? w2hh3
 - set fire to property that did not belong to you? w2hh13
 - gotten into a physical fight at school? w2hh14
 - gotten into a serious argument at school? w2hh5
 - seriously hit someone (not a family member)? w2hh6
 - seriously threatened someone (not a family member)? w2hh7
 - seriously hit a family member? w2hh8
 - seriously threatened a family member? w2hh9
 - committed assault on anyone (a violent physical attack)? w2hh10
 - seriously hurt someone's feelings by being mean (for example you ridiculed, threatened, excluded, spread rumors or lies, made sexual or racist comments, or comments about their appearance)? w2hh15
 - used the Internet to bother or harass someone or to spread mean words or pictures about them? w2hh16

Substance Use:

- In past 6 months how often have you used substances for non-medical purposes: w2p
 - alcohol. w2p1
 - marijuana/hashish. w2p3
 - inhalants/whippets. w2p4
 - uppers/speed. w2p5
 - pills/painkillers. w2p6
 - any other drugs. w2p7

Family Attachment:

- Sibling Attachment:
 - I talk with my brother/sister about my problems. w2j1
 - I share my worries or concerns with my brother/sister. w2j4
 - I feel close to my brother/sister. w2j5
 - I go to my brother/sister for advice or support. w2j6

- My brother/sister is important to me. w2j7
- Attachment to father (or male guardian)
 - I feel comfortable talking to my father. w2ll1
 - I feel close to my father. w2ll2
 - I really enjoy spending time with my father. w2ll4
 - My father helps me with my future educational plans. w2ll6
 - My father helps me with my future family plans. w2ll8
- Attachment to mother (or female guardian)
 - I feel comfortable talking to my mother. w2kk1
 - I feel close to my mother. w2kk2
 - I really enjoy spending time with my mother. w2kk4
 - My mother helps me with my future educational plans. w2kk6
 - My mother helps me with my future family plans. w2kk8
- Family Conflict:**
- Sibling Conflict: how often have you:
 - Yelled at your brother/sister when s/he annoyed you? w2jnnn1
 - Had a fight with your brother/sister to show who is on top? w2jnnn2
 - Reacted angrily when your brother/sister provoked you? w2jnnn3
 - Taken things from your brother/sister? w2jnnn4
 - Gotten angry when frustrated by your brother/sister? w2jnnn5
 - Ruined something of your brother/sister's for fun? w2jnnn6
 - Damaged your brother/sister's things because you felt mad? w2jnnn7
 - Hurt your brother/sister to win a game? w2jnnn8
 - Become mad with your brother/sister when you don't get your way? w2jnnn9
 - Used physical force to get your brother/sister to do what you want? w2jnnn10
 - Gotten mad when you lost a game to your brother/sister? w2jnnn11
 - Gotten angry when your brother/sister threatens you? w2jnnn12
 - Used force to obtain money or things from your brother/sister? w2jnnn13
 - Felt better after hitting or yelling at your brother/sister? w2jnnn14
 - Threatened your brother/sister? w2jnnn15
 - Hit your brother/sister to defend yourself? w2jnnn16
 - Gotten angry or hit your brother/sister when teased? w2jnnn17
 - Yelled at your brother/sister so s/he would do things for you? w2jnnn18
- Conflict with mother (or female guardian): how often in last month has mother:
 - gotten angry at you. w2kk9
 - criticized you. w2kk10
 - shouted or yelled at you. w2kk11
 - argued with you. w2kk12
- Conflict with father (or male guardian):
 - gotten angry at you. w2ll9
 - criticized you. w2ll10
 - shouted or yelled at you. w2ll11
 - argued with you. w2ll12